



Michigan Consulting and Environmental

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August 30, 2007

Mr. Larry Engelhart
Michigan Department of Environmental Quality
Remediation and Redevelopment Division
503 N. Euclid Avenue Suite 1
Bay City, MI 48706-2965

Re: Initial Assessment Report
Facility ID Number **0-0010758**
Confirmed Releases **C-0026-07**
Former Martins Kountry Korner
2990 W. Remus Rd.
Mt. Pleasant, MI 48858

Dear Mr. Engelhart:

Enclosed is the Initial Assessment Report (IAR) for the above referenced facility, as required by the Natural Resource and Environmental Protection Act, PA 451, 1994, Part 213, as amended. It will be necessary to conduct additional investigative tasks to collect data required for preparation of the Final Assessment Report (FAR).

If you have any questions or comments, please contact MCE at (989) 772-2441.

Respectfully,

Michigan Consulting and Environmental, Inc.

Linda M. Hensel, CP, CPG
Senior Project Manager

cc: Mr. Randy Martin, Martins Kountry Korner, Mt. Pleasant, MI



MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY - REMEDIATION & REDEVELOPMENT DIVISION
PO BOX 30426, LANSING, MI 48909-7926, Phone 517-373-9837, Fax 517-373-2637, E-mail DEQ-TANKS@michigan.gov

**LEAKING UNDERGROUND STORAGE TANK
INITIAL ASSESSMENT REPORT**

INSTRUCTIONS: COMPLETION OF THIS REPORT WITH ALL APPLICABLE INFORMATION IS MANDATORY. Complete this form with all applicable information. The Certified Underground Storage Tank Professional (CP) and MUST sign below. Failure to submit a report within the stated time period may result in Administrative Penalties as provided for in Part 213, Section 21313a of 1994 PA 451, as amended. PLEASE RETURN THIS COMPLETED REPORT AND ASSOCIATED ATTACHMENTS TO THE APPROPRIATE RRD DISTRICT OFFICE. See form eqp4410 for a complete list of RRD district offices.

FACILITY NAME: Former Martins Kountry Korner		FACILITY ID NUMBER: 00010758	
STREET ADDRESS: 2990 W. Remus Rd.			
CITY: Mt. Pleasant	ZIP: 48858	COUNTY: Isabella	
DATE(S) RELEASE(S) DISCOVERED: 2/19/07		CONFIRMED RELEASE NUMBER(S): C-0026-07	
O/O NAME: Martin's Kountry Korner			
O/O STREET ADDRESS: 2977 W. Remus Rd.		STATE: MI	ZIP: 48858
CONTACT PERSON: Randy Martin		PHONE NUMBER: (989) 773-7003	

ANSWER ALL QUESTIONS (DO NOT LEAVE BLANKS):

1. a. Has the UST(s) been emptied? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO (If no, explain why):		
b. Has the UST system(s) been properly closed? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO (If no, explain why):		
2. Free product present: a. Currently? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO If YES, total gallons recovered since last report:		
b. Previously? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO If YES, total gallons recovered to date:		
3. Have vapors been identified in any confined spaces (basement, sewers, etc.)? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		
4. Is or was a drinking water supply affected as a result of a release from this facility? <input type="checkbox"/> YES <input type="checkbox"/> NO If YES, indicate type and number: <input type="checkbox"/> Single family <input type="checkbox"/> Municipal (Type I) <input type="checkbox"/> Other (Type II or III) <input type="checkbox"/> Municipal (SW)		
5. Estimated distance and direction from point of release to nearest: a. Private well: approximately 200 feet northeast b. Municipal well: unknown c. Surface water/wetland: 1/2 mile southeast		
6. Has groundwater been impacted at or above Target Method Detection Limits (for metals, impact above Tier 1 unrestricted residential drinking water RBSLs)? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		
7. Totals to date: 0 a. cubic yards of soil remediated: 0 b. gallons of groundwater remediated: 0		
8. Michigan RBCA Site Classification (1-4): 3		
9. MTBE	Has MTBE been detected in any groundwater sample? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	Maximum concentration of MTBE found in groundwater. 0.0 ppb

CERTIFICATION OF REPORT COMPLETION

I, the undersigned CP, hereby attest to the best of my knowledge and belief that the statements in this document and all attachments are true, accurate, and complete. I certify that the report was submitted to the Remediation & Redevelopment Division (RRD)

on August 30, 2007 (Date submitted REQUIRED)


CP Original Signature - (REQUIRED)

8/30/2007
Date

Linda M. Hensel
PRINT QC PROJECT MANAGER'S NAME

Linda M. Hensel
PRINT CP's Name

Michigan Consulting & Environmental
NAME OF CONSULTING FIRM

CP ID 659

QC ID: Z0188

ADDRESS P.O. Box 484 Mt. Pleasant, MI 48804-0484

PHONE: (989) 772-2441 FAX: (989) 773-2146

Instructions - Utilize the following checklist to ensure that all required information is provided in the Initial Assessment Report (IAR). Include this checklist as the table of contents. The order in which the information is provided is at your discretion. Each page of the report (including the cover sheet, table of contents, appendices, figures, etc.) should be consecutively numbered. The location column should be completed with the appropriate page number for each item. You may reference previously submitted materials by specifying the location within that document. Maps, tables, figures, etc. should be combined as appropriate.

All information required by Part 213 to be included in the IAR **must** be provided, and all sections of the report must be completed. If any items are not applicable to the site, provide a justification regarding the absence of this information in the appropriate section of the report.

Section	Table of Contents	Page
1.0	<u>INITIAL RESPONSE TO RELEASES</u>	
A.	Provide the date and time the release(s) was/were discovered and reported.	<u>11</u>
B.	Indicate what portion of the underground storage tank (UST) system is, or is believed to be, the source of the release.	<u>11</u>
C.	Describe how the release was discovered.	<u>11</u>
D.	Describe any tank tightness testing performed in response to this release and provide the following:	<u>-</u>
	1. Date of the testing	
	2. Method of testing	
	3. Results of the testing	
E.	List all former and existing USTs at this facility including the following information for each of these tanks:	<u>11</u>
	1. Tank ID Number (as registered)	
	2. Contents (past/present, if gasoline specify grade and whether leaded or unleaded)	
	3. Size of the UST	
	4. Whether the tank was identified as a leaking underground storage tank (LUST)	
	5. Whether the tank has been emptied and/or removed. If a LUST, provide an explanation if not emptied or removed.	
F.	Describe the initial response actions which were performed at this site, as specified in Sections 21307(2)(a) through (c), and (3)(a) and (b).	<u>11</u>
2.0	<u>REPORTING AND RESPONSE FOLLOWING THE DISCOVERY OF FREE PRODUCT</u>	
	If free product has not been discovered, proceed to Section 3.0.	
A.	Describe initial response actions performed at this site to address the presence of free product as specified in Sections 21307(2)(c) and (f), and (3)(b) and (c), 21308a(1)(b)(xviii). Refer to the Storage Tank Division Operational Memorandum No. 7, <i>Identification, Reporting, and Recovery of Free Product at LUST Sites</i> .	<u>11</u>
B.	Attach the RRD Free Product Recovery Status Report (EQP 3850).	<u>-</u>
C.	Include a schedule for subsequent Free Product Report submittals.	<u>-</u>

3.0 SITE CHARACTERIZATION INFORMATION

3.1 SCALED SITE MAPS

A. Provide a scaled area map (or maps) which includes the following:	
1. Site boundaries in relation to the surrounding area and the nearest major roads.	12
2. Location and depth of nearby underground sewers and utility lines.	Fig. 2-7
3. Location of nearby surface waters or wetlands.	Fig. 1
4. Location and screened depth of all off-site wells (municipal, residential, production, irrigation, etc.) within two years groundwater travel time of the property line, which may be dependent on the pumping rates of the identified well(s).	-
5. Location of all nearby delineated well-head protection areas.	-
B. Provide a scaled site map (or maps) which includes the following:	
1. Location of fill ports, piping, dispensers, and other pertinent system components for all UST systems currently or formerly at the facility (<i>prior to excavation if tanks have been removed</i>).	Fig. 3
2. Location of the release and the component of the LUST system from which the release occurred.	Fig. 3
3. Location of adjacent buildings, roadways, paved areas, or other structures.	Fig. 1-2
4. Location of all on-site wells and screened intervals.	Fig. 7
5. Location of soil, groundwater, surface water, sediment or air samples, as applicable.	Fig. 4-7
6. Excavation dimensions and sample locations if applicable.	Fig. 4

3.2 SCALED CROSS-SECTIONAL DIAGRAMS

A. Provide scaled cross-sectional diagrams of buried utility corridors, including the pipe diameter, the type of backfill, and the trench depth.	-
B. Provide scaled cross-sectional diagrams depicting the soil lithology and the contaminant distribution, including sampling intervals and boring depths.	App. B
C. Provide scaled cross-sectional diagrams depicting the site hydrogeology, including the groundwater potentiometric surface, the monitoring well screened intervals, and sampling intervals.	-

3.3 SOIL CONDITIONS AND CHARACTERISTICS

A. Describe the soils encountered in the vadose zone.	12
B. Describe any soil contamination which has been detected.	13
C. Describe any soil remediation or disposal activities performed to date, including the total volume of soil remediated or disposed. Indicate the disposal location, and provide proof of disposal (e.g., invoices, not load tickets).	-

Section	Table of Contents	Page
D.	Provide a site diagram which identifies the estimated horizontal and vertical extent of on-site and off-site soil contamination. Include the maximum concentrations and sample depths.	-
E.	Provide an estimate of the volume of impacted soil remaining in the vadose zone.	-
F.	Describe steps that have been taken, or will be taken, to secure access to <u>off-site</u> properties, including easements and right-of-ways, to complete the delineation of the extent of the <u>off-site</u> impact of the release to soil. Include the names and addresses of potentially affected off-site property owners.	-
G.	Provide the schedule for completing the delineation of the extent of the <u>off-site</u> impact of the release to soil.	-
H.	Provide a table with field screening and laboratory data showing the results of all soil sampling performed to date for the required parameters. Refer to the Storage Tank Division Operational Memorandum No. 14, <i>Analytical Parameters and Methods, Sample Handling, and Preservation for Petroleum Releases</i> .	Table 1-4
	1. Sample ID	
	2. Sample depth	
	3. Date of collection	
	4. Dates of extraction and analysis	
	5. Method Detection Limits	
	6. Analytical method or field screening instrument	
	(NOTE: The RRD may request copies of the laboratory data sheets, chain-of-custody forms, and all available QA/QC information.)	
I.	Provide a table which compares the maximum remaining soil contaminant concentrations for each required parameter to the appropriate RBSLs as provided in Storage Tank Division Operational Memorandum No. 4, <i>Tier I Lookup Tables for Risk-Based Corrective Action at Leaking Underground Storage Tank Sites</i> . If residential leaching to groundwater RBSLs are not utilized for comparison, provide an explanation.	Table 1-4
J.	Provide soil boring logs.	App. B
K.	Identify any known soil contamination not related to the release and the source, if known.	-
3.4	GROUNDWATER CONDITIONS AND CHARACTERISTICS	
A.	Describe the site hydrogeology, and include the following:	13
	1. Depth to groundwater and method of determination.	Table 5
	2. Whether the groundwater is potable and/or not in an aquifer. Provide the basis for this determination. Refer to Storage Tank Division Operational Memorandum No.11, <i>Criteria to Eliminate the Potable Groundwater Pathway</i> .	-

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3. Whether the groundwater is currently used as a source of drinking water, either residential or municipal.	14
4. Whether groundwater is being used for a purpose other than drinking water.	14
5. Whether more than one groundwater unit is present beneath the site.	-
6. Depth to bottom of water-bearing layer.	14
7. Predominant soil type in water-bearing stratum (e.g., sand, silt).	14
8. Effective porosity of water-bearing stratum (in $\text{cm}^3_{\text{void}}/\text{cm}^3_{\text{matrix}}$), and describe how it was determined.	-
9. Hydraulic conductivity, and describe how it was determined.	-
10. Groundwater flow rate and direction.	14
11. Lateral component of the hydraulic gradient.	-
12. Hydrogeologic conditions that could influence flow direction.	-
13. Magnitude and direction of the vertical component of the hydraulic gradient.	-
 B. Attach copies of the following:	
1. Boring logs	App. B
2. Well construction diagrams	App. B
3. Potentiometric surface map	-
4. Elevation data (USGS datum preferred), including top-of-casing, and grade elevations, and depth to groundwater	Table 5
 C. Provide scaled maps and cross-sectional diagrams, showing the screened and/or sampling interval, which depict the extent of impact and the maximum concentrations.	Fig. 2-7
 D. Indicate whether more than one groundwater unit has been impacted.	-
 E. Describe any groundwater remediation activities performed to date, including the total volume of groundwater remediated and the disposition of this groundwater.	-
 F. Provide an indication of whether the plume currently extends off-site.	-
 G. Describe steps that have been taken, or will be taken, to secure access to <u>off-site</u> properties, including easements and right-of-ways, for the purpose of completing the delineation of the extent of the release to groundwater, and provide the names and addresses of off-site property owners.	-
 H. Provide the schedule for completing the delineation of the extent of the off-site impact of the release to groundwater.	-
 I. Provide a table with field screening and laboratory data showing the results of all groundwater sampling performed to date for the required parameters. Refer to the Storage Tank Division Operational Memorandum No. 14. The table should include the following:	Table 1-4
1. Sample ID	
2. Sample depth and/or screened interval	
3. Date of collection	
4. Dates of extraction and analysis	
5. Method Detection Limits	
6. Analytical method or field screening instrument	

(NOTE: The RRD may request copies of the laboratory data sheets, chain-of-custody forms, and all available QA/QC information.)

Section	Table of Contents	Page
J.	Provide a table which compares the maximum remaining groundwater contaminant concentrations for each required parameter to the appropriate RBSLs as provided in Storage Tank Division Operational Memorandum No. 4. If residential health-based/aesthetic drinking water criteria are not utilized for comparison, provide an explanation.	Table 1-4
K.	Identify any known groundwater contamination not related to the release and the source, if known.	-
3.5	CONDITIONS AND CHARACTERISTICS IN OTHER ENVIRONMENTAL MEDIA	
A.	Describe the evaluations conducted to determine if other environmental media have been impacted.	14
B.	Describe the extent and distribution of any contamination present in any environmental media other than soil or groundwater.	15
C.	Describe any actions taken or planned in response to contamination in other environmental media.	-
D.	Describe steps that have been taken, or will be taken, to secure access to <u>off-site</u> properties, including easements and right-of-ways, to complete the delineation of the extent of the <u>off-site</u> impact of the release to the other specified environmental media. Provide names and addresses of potentially affected off-site property owners.	-
E.	Provide a schedule for completing the delineation of the extent of the <u>off-site</u> impact of the release to the other specified environmental media.	-
F.	Provide a table with the field screening and laboratory data showing the results of all sampling performed to date in the other specified environmental media.	Table 1-4
	<i>(NOTE: The RRD may request copies of the laboratory data sheets, chain-of-custody forms, and all available QA/QC information.)</i>	
G.	Identify any known contamination in the other specified media not related to the release, and the source if known.	-
4.0	<u>SITE CLASSIFICATION</u>	
A.	Indicate the current Site Classification Level, in accordance with Storage Tank Division Operational Memorandum No. 5, <i>Leaking Underground Storage Tank (LUST) Site Classification System</i> .	15

Section	Table of Contents	Page
B.	Provide a justification for this classification. Identify the current conditions that are the basis of the classification, and dates that the prescribed initial response actions were implemented.	15

5.0 RESULTS OF THE RBCA EVALUATION

5.1 EXPOSURE PATHWAY CHARACTERIZATION

A.	Identify and describe the following (Figure 2, <u>Exposure Scenario Evaluation Flowchart</u> , provided in the <i>ASTM RBCA E 1739-95</i> , may be utilized):	
1.	Potential source(s)	15
2.	Potential transport mechanism(s)	15
3.	Potential exposure routes(s)	15
4.	Potential receptor(s)	16
B.	List each possible exposure pathway(s) for each land use, and sensitive habitat (if applicable) for the site. Provide an explanation for eliminating any pathways.	16-17

NOTE: A complete pathway must include three necessary elements:

- 1) a source (e.g., contamination)
- 2) a mechanism by which the contamination can become available to result in exposures at the source or via migration to other locations (e.g., free product and contaminated groundwater movement along a buried utility corridor)
- 3) an individual who may come into contact, ingest, or inhale the contamination at the point of exposure (e.g., a utility maintenance worker digging to repair the line).

Examples of a complete pathway include:

- 1) inhalation of impacted soils by an on-site construction worker.
- 2) impacted soils leaching into potable ground water and being used by a nearby resident for drinking and bathing.
- 3) inhalation of vapors resulting from the migration of free product by a neighboring industrial worker.
- 4) impacted groundwater discharging to wetlands.

5.2 OPTIONAL TIER II EVALUATION

A.	Indicate whether a site-specific Tier II or evaluation has been conducted for this site.	17
B.	If applicable, identify and justify where alternate assumptions or site-specific information were used in place of the default assumptions as defined in the Storage Tank Division Operational Memorandum No. 4.	-
C.	Provide the calculations and reference citations supporting the development of the relevant Tier II SSTLs.	-

- D. Provide a table which compares the maximum remaining contaminant concentrations for each required parameter for all media to the appropriate RBSLs (as provided in the Storage Tank Division Operational Memorandum No. 4), and the calculated SSTLs. Identify all applicable land use scenario(s), and indicate whether or not there is an exceedance of the RBSLs or the SSTLs.
-

5.3 PROPOSED FOLLOW-UP ACTIVITIES

- A. Based on the results of the Tier I or optional Tier II evaluation, indicate the follow-up activities proposed for the site, (e.g., site closure; interim corrective action with subsequent reevaluation; final corrective action to achieve Tier I RBSLs or Tier II SSTLs; or perform further site-specific Tier II or Tier III evaluation to establish alternative SSTLs that meet the target risk goals).
-
- B. Provide justification for the option chosen.
-
- C. Provide a Work Plan and implementation schedule that describes the proposed site characterization activities to be performed to determine the horizontal and vertical extent of contamination. Include a scaled site map depicting proposed sampling locations.
-

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Initial Assessment Report

Facility ID: 00010758
2990 W. Remus Rd.
Mt. Pleasant, (Isabella Co.) Michigan 48858

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Initial Assessment Report

Facility ID: 00010758
2990 W. Remus Rd.
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FIGURE 1	Site Location Map
FIGURE 2	Base Map
FIGURE 3	Enlarged Base Map
FIGURE 4	Excavation Sampling Map
FIGURE 5	Soil Sampling Analytical Data Map
FIGURE 6	Groundwater Sampling Analytical Data Map
FIGURE 7	Groundwater Flow Map
APPENDIX A	Photographs
APPENDIX B	Soil Boring Logs
APPENDIX C	Analytical Results
APPENDIX D	Water Well Logs
TABLE 1	Soil Analytical Data
TABLE 2	Groundwater Analytical Data
TABLE 3	Soil Comparison
TABLE 4	Groundwater Comparison
TABLE 5	Static Water Elevations

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY - STORAGE TANK DIVISION
INITIAL ASSESSMENT REPORT

1.0 INITIAL RESPONSE TO RELEASE

Michigan Consulting & Environmental (MCE) was retained as the consultant for the former Martins Kountry Korner as of January 10, 2007. The USTs were registered to Martins Kountry Korner located at 2990 W. Remus Rd., Mt. Pleasant, Michigan. The Facility Number is 00010758. The three (3) UST systems listed below were removed on January 31, 2007. Based upon the analytical results from the site assessment sampling performed on the three (3) former UST systems on January 31, 2007, a release was discovered to have occurred during UST system closure at the site on January 31, 2007 and was reported to MDEQ on February 19, 2007. Tank #3, #4 and #5, respectively, were of eight thousand (8000), six thousand (6000) and four thousand (4000) gallon capacity and were used most recently to store unleaded gasoline. See Appendix A for photographs and descriptions of the UST closure. There was no physical evidence of the source of the release due to mechanical means from any of the former UST system components. However, discolored soils were visually identified on the excavation west sidewalls at a level below the tops of these three (3) USTs.

Former USTs

TANK ID NUMBER (Capacity As Registered)	CONTENTS (Regulated Substances) - Specify grade if gasoline -		LUST?	HAS THE TANK BEEN EMPTIED?	HAS THE TANK BEEN REMOVED?
	At Time of Release	Previous Contents	Yes or No	Yes or No and Date	Yes or No and Date
3 (8,000)	Gasoline	Gasoline	Yes	Yes 11/06	Yes 1/31/07
4 (6,000)	Gasoline	Gasoline	Yes	Yes 11/06	Yes 1/31/07
5 (4,000)	Gasoline	Gasoline	Yes	Yes 11/06	Yes 1/31/07

2.0 REPORTING AND RESPONSE FOLLOWING THE DISCOVERY OF FREE PRODUCT

MCE found no evidence of free product within soil or groundwater at any location where sampling occurred during performance of the site investigations performed on January 31 and on June 26, 2007. Free product was not encountered in July 2007 during the performance of subsurface soil and groundwater sampling.

3.0 SITE CHARACTERIZATION INFORMATION

On June 26, 2007, MCE completed on-site investigative activities to characterize the nature, and attempt to define the extent of the release. Eleven (11) soil borings were installed via Geoprobe and two (2) groundwater samples were obtained via temporary monitoring well (each composed of 1" diameter Schedule 40 PVC). In addition three (3) groundwater monitoring wells were installed via Geoprobe using 4^{1/4}" hollow stem augers. These monitoring wells, MW-1, MW-2 and MW-3 were installed in the location of GP-9-07, GP-10-07 and GP-11-07 within the former UST excavation. The borings were completed in the vicinity of the former dispensers, within the excavation of the

former USTs and outside of the excavation along all borders. See Figure 5 for boring locations.

3.1 SCALED SITE MAPS

A topographic map of the site location is included as Figure 1. The map depicts the location of the facility in relation to major roads, surface water/wetlands and height above sea level. The base map is included as Figure 2 & 3. The base map depicts the location of the former USTs, dispensers, piping runs and the location of known utilities. Figure 4 depicts the sample concentrations and locations within the excavation of the former UST area. Figure 5 depicts the concentration and locations of the soil borings completed on June 26, 2007. Figure 6 depicts the location of the groundwater monitor wells and temporary wells, along with, the concentrations of the groundwater.

3.2 SCALED CROSS-SECTIONAL DIAGRAMS

Based upon the relative uniformity of the soil present onsite, a scaled cross sectional diagram was not prepared.

3.3 SOIL CONDITIONS AND CHARACTERISTICS

The following generalized descriptions represent observed native soil conditions encountered at the respective soil boring and vertical profile locations. An example of the soil stratum from GP-1-07 is described below.

GP-1-07 through GP-11-07

Stratum 1 Asphalt: from 0.0' to 0.2'

Stratum 2 Fill: from 0.2' to 1.25' GRAVELLY SAND, brown, dry

Stratum 3 Clay: from 1.25' to 2.0' CLAY, medium stiff, light brown, dry,

Stratum 4 Sand: from 2.0' to 4.75' SILTY SAND, dark brown, moist

Stratum 5 Clay: from 4.75' to 5.5' CLAY, medium stiff, light brown, slightly moist

Stratum 6 Clay: from 5.5' to 10.25' SANDY CLAY, very soft, slightly plastic, brown, moist

Stratum 7 Sand: from 10.25' to 14.5' Fine to medium SAND, brown, wet (Saturated sand is present exterior of the former USTs in some locations between depths of 11 and 13.75 feet below grade ; wet, SANDY CLAY, is present exterior of the former USTs in some locations between depths of 12 and 15.5 feet below grade.

Stratum 8 Clay: from 14.5' to 15.0' SANDY CLAY, soft, plastic, light brown, very moist

A copy of the soil boring logs can be found in Appendix B and a copy of the soil boring locations map may be found in Figure 5.

The soil samples collected by MCE during the tank removal on January 31, 2007 from the dispensers was non detect with the exception of toluene with a concentration of 60

ug/kg from the south unleaded dispenser sample obtained at 1.5 feet below surface which was well below RBSLs levels. Based on the analytical results of the soil samples collected by MCE during the June 26, 2007 investigation, the horizontal and vertical extent of soil contamination was not defined to the south (GP-5 has contaminant levels that exceed current cleanup criteria as described later in this section), to the west and to the northeast. The June 26, 2007 soil analytical results indicated that in the location of GP-1-07 from 7.0 to 8.0 feet below surface had a concentration of 1,700 ug/kg of 2-methylnaphthalene, 540 ug/kg of naphthalene, 320 ug/kg of 1,2,3-trimethylbenzene and 560 ug/kg of 1,3,5-trimethylbenzene. In the shallow sample from GP-5-07, installed to determine the extent of contamination the south of the former dispensers had concentrations of naphthalene of 8,600 ug/kg and xylenes of 710 ug/kg, that exceeded Residential & Commercial I Groundwater Surface Water Interface Criteria; 1,2,4-trimethylbenzene had a concentration of 5,100 ug/kg and was above both the groundwater surface water interface and drinking water RBSLs. The deeper sample at the GP-5-07 location between 17.0-18.0 feet below surface was non detect. The soil samples were submitted to Fibertec Environmental Services for analysis of VOCs using EPA method 5035/8260B. See Appendix C for analytical report and Table 1 for tabulated soil analytical results and Table 3 for a soil comparison table.

3.4 GROUNDWATER CONDITIONS AND CHARACTERISTICS

During the January 31, 2007 UST removal and June 26, 2007 site investigation MCE encountered groundwater in the bottom of the tank basin. Benzene, ethylbenzene, toluene, xylenes, 1,2,4-TMB, 1,3,5-TMB and naphthalene exceed Drinking Water Protection and Groundwater Surface Water Criteria in groundwater collected from both ends of the former gasoline UST area from MW-3 and GP-5-07 (5'-10'). The groundwater samples were submitted to Fibertec Environmental Services for analysis of VOCs using EPA method 5030B/8260B. See Appendix C for analytical report and Table 2 for tabulated groundwater analytical results and Table 4 for a groundwater comparison table.

The depth to groundwater was approximately 6.0 feet below grade as determined by the zone of saturation in the fill encountered at soil boring locations within the former UST basin. The depth to groundwater outside the former UST area was noted at a deeper interval at approximately 10.0 feet below surface. Soils within the zone of saturation vary from a fine to medium sand to sandy clay.

MCE obtained water well records from the MDEQ scanned water well record database on the Internet. Copies of the six (6) closest drinking water wells are included in Appendix D. The closest water well to the site is located approximately 50 feet north of the former UST systems on the south side of the adjacent apartment building property. A well log was not available for this property but MCE try to obtain one. The depth to the uppermost aquifer utilized as a drinking water source onsite in the well log submitted for the site is 103 feet and the well is screened between depth of 118 feet below surface. The static water level in this well is 52 feet at the time of drilling. The well log indicates that the first 35 feet below surface is clay, followed by a 33 feet thick layer of gravel to a depth of 68 feet. Between 68 feet and 85 feet below surface another clay layer was noted. From 85 to 118 feet it was noted to be sand and gravel with a clay layer between 100 and 103 feet below surface. The well log submitted for the property adjacent to the site to the east has a recorded water level at 55 feet and is screened to a total depth of 98 feet below surface. The shallowest set well, based on the available water well

records, is 56 feet deep below grade with a recorded depth to water of 40 feet below surface (Jerry Witte). This well is located at 2844 W. Remus Rd., Mt. Pleasant, Michigan and is about 0.5 miles east of the site. According to the water well log submitted for the Martins Kountry Korner 2990 W. Remus Rd., Mt. Pleasant, Michigan suggests that the aquifer encountered at approximately 10 feet below surface by MCE during the June 26, 2007 investigation is perched. According to the well logs the depth of the top clay unit varies in thickness from surface to 42 feet below grade and is followed by a 15 to 40 feet thick layer of sand and gravel. The logs indicate that the top clay layer is thicker at the site and adjacent to the site to the east. The sand and gravel layer is thicker to the north and at the site compared to further east of the site. According to the available water well logs, the aquifer is deeper closer to the site.

The groundwater unit is not believed to be a source of drinking water, either residential or commercial, or for any other known purpose. However, drilling onsite has not exceeded a depth of 20 feet below grade. The water well record associated with the site has clay present to 35 feet below grade. In addition to the additional shallow wells that MCE will need to install on- and offsite, MCE will need to install a deeper well downgradient of the UST area onsite to determine the vertical extent of groundwater impact. The proposed additional investigation will also provide additional information about the stratigraphy below a depth of 20 feet below grade, both on and off site.

The groundwater flow direction has been determined to be in a northwesterly direction. This is based upon the static water level (swl) measurements made on the current well network that are mostly screen within the sand fill associated with the former UST systems. The groundwater flow direction will be more fully known once additional wells are placed on- and offsite because of the limitations of the current well network due to its configuration. The site has a slight slope to the northwest. See Table 5 for groundwater elevations. A groundwater flow map has been prepared from static water level (SWL) measurements from July 2007. The July 2007 groundwater flow map is attached as Figure 7.

3.5 CONDITIONS AND CHARACTERISTICS IN OTHER ENVIRONMENTAL MEDIA

Based on the results of the January 31, 2007 UST removal, the June 26, 2007 investigation and the July groundwater sampling event, soil and groundwater were the only environmental media found to be impacted by the release. Impacted soil was found at a depth of approximately three (3.0) in boring GP-5-07 and seven (7.0) feet below grade in boring GP-1-07. The soil analytical results indicated in boring GP-1-07 that there was detectable concentrations of 2-methylnaphthalene, naphthalene and 1,3,5-trimethylbenzene which were below Residential and Commercial I Generic Cleanup Criterion RBSLs. The shallow boring GP-5-07, which was in the location of the former dispensers, indicated detectable concentrations of ethylbenzene, 2-methylnaphthalene and 1,3,5-trimethylbenzene, which were below Residential and Commercial I Generic Cleanup Criterion RBSLs, however, naphthalene, xylenes, and 1,2,4-trimethylbenzene were in excess of Groundwater Surface Water Interface RBSLs. The groundwater analytical results indicated detectable concentrations of benzene, toluene, naphthalene, ethylbenzene, xylenes, 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene compounds in excess of the Residential and Commercial I Generic Cleanup Criterion. The remaining two (2) monitor wells (MW-1 located to the south in the former UST area and

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FTCH-MW-3(located in Winn Rd.) did not have levels, which exceeded the method detection limit.

4.0 SITE CLASSIFICATION

Based on the exposure pathway scenario, currently there is no demonstrable long-term threat to the public health, safety, or sensitive receptors resulting from the releases at this site.

Subsurface soil is impacted within the former UST excavation but the soil is not accessible by the public and there is a significant thickness between impacted soils and the first potable aquifer. Shallow groundwater was found to be impacted by the release, however there are no potable wells producing from the interval impacted within the limited known extent of contamination.

Therefore, the site is determined to be a **Class 3** site. This classification is the initial classification for the Martins Kountry Korner, Facility ID # 00010758 site for this release.

5.0 RESULTS OF THE RBCA EVALUATION

5.1 EXPOSURE PATHWAY CHARACTERIZATION

To pose an actual risk to human health or the environment, all three components of an exposure pathway must be present at a site: 1) an affected source medium, 2) a mechanism for contaminant transport, and 3) a current or potential future receptor.

Potential Source(s)

- ☒ Impacted Soils
- ☒ Dissolved Groundwater Plume
- ☐ Free Phase Liquid Plume
- ☐ Impacted Sediments or Surface Water

Potential Transport Mechanism(s)

- ☐ Wind Erosion and Atmospheric Dispersion
- ☐ Volatilization and Atmospheric Dispersion
- ☒ Volatilization and Enclosed-Space Accumulation
- ☒ Leaching and Groundwater Transport
- ☐ Mobile Free-Liquid Migration
- ☐ Storm water/Surface Water Transport
- ☐ Utility Corridors

Potential Exposure Route(s)

- ☐ Soil Ingestion
- ☐ Direct Contact of Soil
- ☒ Inhalation of Airborne Particles
- ☒ Inhalation of Volatiles
- ☐ Potable Water Use
- ☐ Use of Non-Potable Water
- ☐ Other

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Potential Receptor(s)

- ☒ Resident
- ☐ Commercial Worker III*
- ☐ Commercial Worker IV*
- ☐ Industrial Worker
- ☒ Construction Worker
- ☐ Sensitive Habitat
- ☐ Structures
- ☐ Surface Waters
- ☐ Water Supply Wells

The results of the soil and groundwater analytical testing have been compared to Tier 1 Residential Criteria for contaminants detected on the site. The following discussion compares analytical results to the specific respective cleanup criteria.

GROUNDWATER

Groundwater Ingestion

The maximum remaining detected concentrations of benzene, toluene, naphthalene, ethylbenzene, xylenes, 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene exceeded the Residential & Commercial I Drinking Water RBSL. Therefore volatile compounds leaching to groundwater is an appropriate migratory pathway at this facility.

Groundwater Surface Water Interface (GSI) Criteria

The maximum remaining detected concentrations of toluene, naphthalene, ethylbenzene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene and xylenes, exceeded the Residential & Commercial I Groundwater Surface Water Interface (GSI) RBSLs. The distance to the nearest surface water from the site is several miles to the southeast and is determined to be up gradient to the site. Therefore, groundwater surface water interface is not considered an appropriate potential migratory pathway for this site.

Groundwater Volatilization to Buildings or Confined Space

The maximum remaining detected concentrations of volatile compounds, in groundwater, did not exceed the Residential & Commercial I Volatilization to Indoor Air RBSL. Therefore, volatilization to indoor air is not an appropriate migratory pathway at this site.

Utility Worker Groundwater Direct Contact

The maximum remaining detected concentrations of volatile compounds, in groundwater, did not exceed the Residential & Commercial I Groundwater Direct Contact RBSL. Therefore, direct contact with the groundwater is not an appropriate migratory pathway at this site.

SOIL

Drinking Water Protection

The maximum detected concentrations of 1,2,4-trimethylbenzene exceeded Residential & Commercial I Residential Drinking Water RBSLs. Therefore, volatile compounds leaching to groundwater is an appropriate migratory pathway at this site.

Groundwater Surface Water Interface (GSI)

The maximum known remaining detected concentrations of naphthalene, 1,2,4-trimethylbenzene and xylenes, in soil, exceeded the Residential & Commercial I GSI RBSLs. Therefore, groundwater surface water interface is considered a potential migratory pathway for this site.

Soil Volatilization to Indoor Air Inhalation

The maximum remaining detected concentrations of volatile compounds, in soil, did not exceed the Residential & Commercial I Soil Volatilization to Indoor Air Inhalation RBSL. Therefore, volatilization to indoor air is considered an applicable but not relevant potential migratory pathway for this site.

Soil Volatilization to Ambient Air

The maximum remaining detected concentrations of volatile compounds, in soil, did not exceed the Residential & Commercial I Infinite Source Volatile Soil Inhalation (VSIC) RBSL. Therefore, volatilization to outdoor air is considered an applicable but not relevant potential migratory pathway for this site.

Soil Direct Contact

The maximum remaining detected concentrations of volatile compounds, in soil, did not exceed the Direct Contact RBSL. Therefore, direct contact of the soil is considered an applicable but not relevant potential migratory pathway for this site.

Based on the assessment results, for soil and groundwater there are potentially completed exposure pathways. Soil was impacted with volatile compounds at concentrations greater than Residential & Commercial I Drinking Water Protection RBSLs. Groundwater was impacted with volatile compounds at concentrations, which exceeded Residential & Commercial I Drinking Water Criteria RBSLs.

5.2 OPTIONAL TIER 2 EVALUATION

The Tier 1 screening levels for volatile compounds in soil and volatile compounds in groundwater were exceeded. A site-specific Tier 2 evaluation to develop Site Specific Target Levels (SSTLs) has not yet been conducted for this facility.

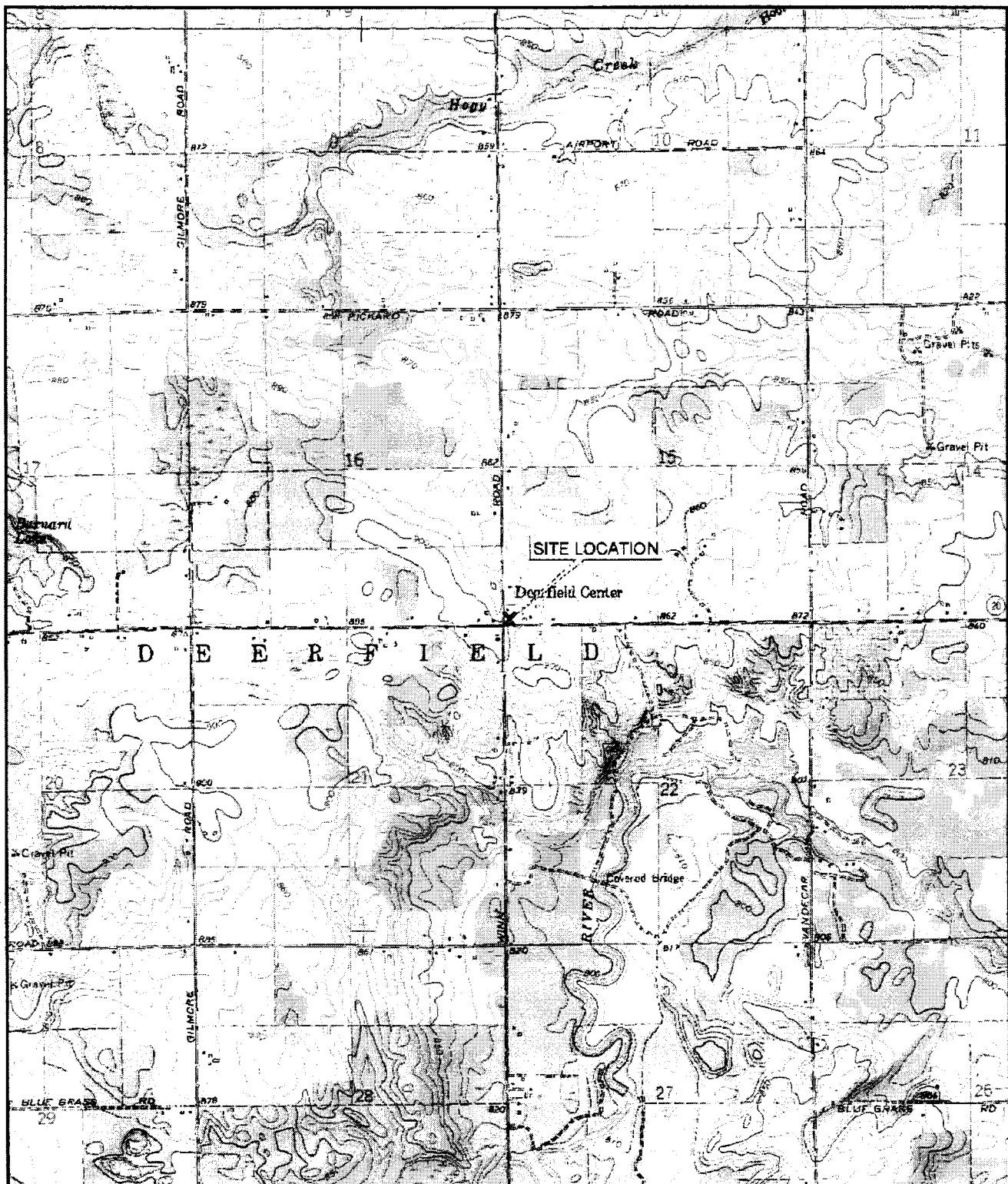
5.3 PROPOSED FOLLOW-UP ACTIVITIES

Additional sub-surface investigative tasks will be implemented to determine the horizontal and vertical extent of soil contamination in the vicinity of the former south unleaded dispenser and to determine the horizontal and vertical extent of groundwater contamination on-site within native soils and fill. Additional wells are required on the Winn Road right-of-way (ROW) in order to verify the extent of groundwater contamination (if any) in the native soils and to ascertain the groundwater flow both on- and offsite. Vertical sampling will occur downgradient of the former USTs and MW- in order to define the vertical extent of the contamination immediately downgradient of the source. Additional monitoring wells will be installed downgradient of the former USTs near the north and west property lines. In addition, additional groundwater sampling will be performed to monitor the plume, which is confined to the area between GP-5-07, and MW-3 based on current information. Unknown hydraulic parameters of the upper aquifer will be determined (if necessary) if saturated conditions are present within native soils and if they are encountered at comparable depths both on- and offsite.

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Once the vertical and horizontal extent of contamination in the groundwater is fully defined, potentially applicable corrective action alternatives will be explored by implementation of the Risk Based Corrective Action (RBCA) process. The principal advantage and disadvantage of potential alternatives will be evaluated in consideration of cost, probable effectiveness, estimated time to achieve cleanup goals, and the needs of the former Martins Kountry Korner. The primary alternatives considered to address the contaminant levels in the soil and groundwater beneath the facility may be but not limited to: a) RBCA Tier 2 evaluation and development of SSTLs, b) institutional controls to allow existing contamination to remain, c) bio-enhanced attenuation, and d) soil excavation. Some combination of the above technologies is likely to be incorporated. Fieldwork to complete the investigation will be scheduled in late 2007 to early 2008. The Final Assessment Report will be submitted after the results of the proposed follow up activities are considered.

FIGURES



Michigan
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Project:

MARTIN'S KOUNTRY KORNER

M20 & WNN INTERSECTION
MT. PLEASANT, MICHIGAN

SITE LOCATION MAP

File No.:

41256

ACAD File No.:

m20Winn_base

Date: 1/19/07

Revised:

Drawn By:

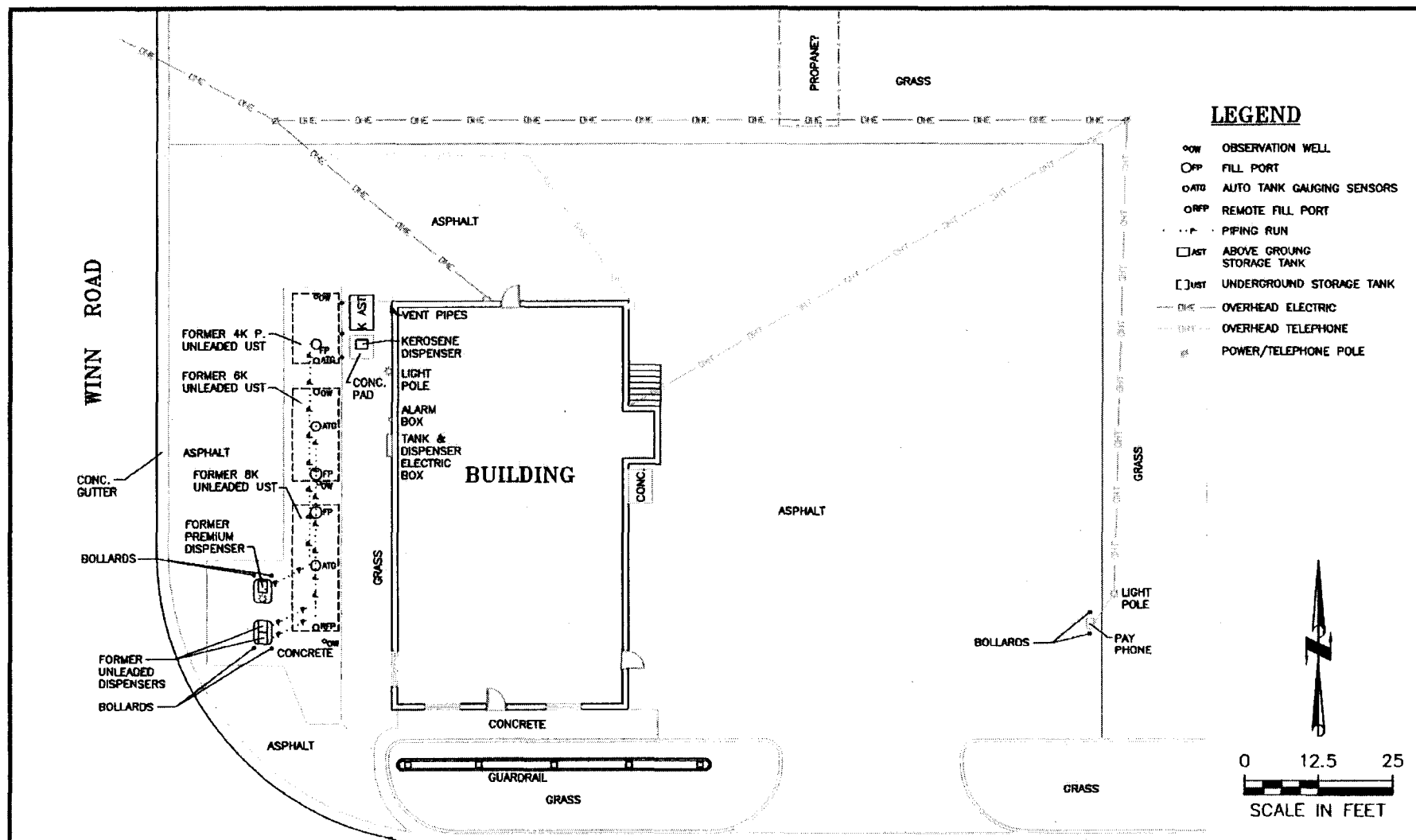
LAR

Design By:

LMH

Figure:

1



M-20

Project: MARTIN'S KOUNTRY KORNER
M20 & WINN INTERSECTION
MT. PLEASANT, MICHIGAN

BASE MAP

File No.: 41256

ACAD File No.: M20WNN_BASE

Date: 1/19/07

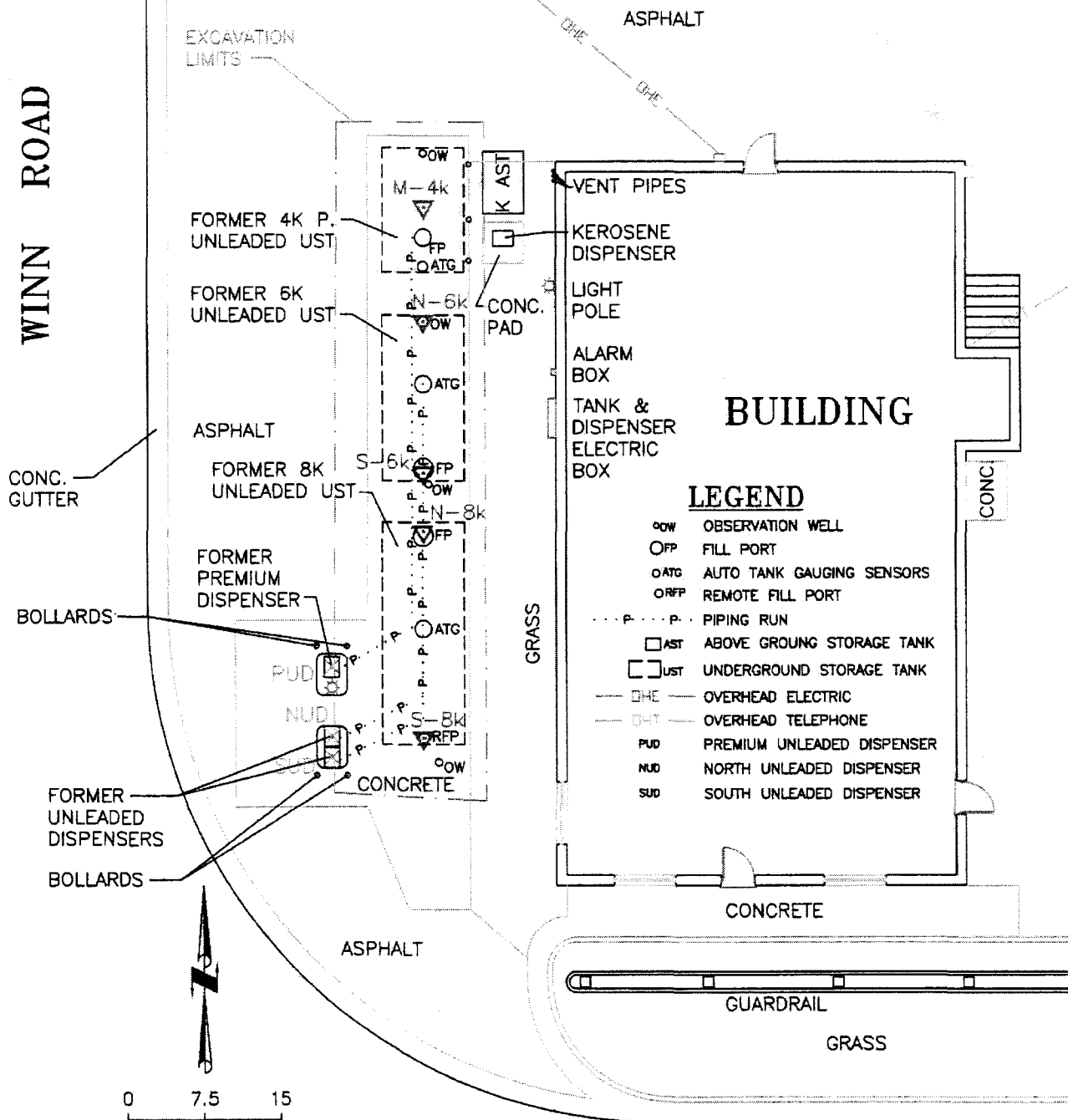
Revised:

Drawn By: LAR

Design By: LMH

Figure: 2

WINN ROAD



LEGEND

- OW OBSERVATION WELL
- FP FILL PORT
- ATG AUTO TANK GAUGING SENSORS
- ORFP REMOTE FILL PORT
- P --- P --- PIPING RUN
- AST ABOVE GROUND STORAGE TANK
- UST UNDERGROUND STORAGE TANK
- OHE OVERHEAD ELECTRIC
- OHT OVERHEAD TELEPHONE
- PUD PREMIUM UNLEADED DISPENSER
- NUD NORTH UNLEADED DISPENSER
- SUD SOUTH UNLEADED DISPENSER



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Project: MARTIN'S KOUNTRY KORNER

M20 & WINN INTERSECTION
MT. PLEASANT, MICHIGAN

ENLARGED BASE MAP TANK AREA

File No.: 41256

ACAD File No.: m20Winn_base

Date: 2/14/07

Revised:

Drawn By: LAR

Design By: LMH

Figure: 3

